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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP97/00188

A. CLASSIFICATION OF SUBJECT MATTER Int. Cl ⁶ C01B5/00 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int. Cl ⁶ C01B5/00 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1926 - 1997 Kokai Jitsuyo Shinan Koho 1971 - 1997 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP, 55-41805, A (Tanaka Kikinzoku Kogyo K.K.), March 24, 1980 (24. 03. 80), - <i>doc a. abstract</i> Page 3, lower right column, line 4 to page 4, upper left column, line 6 (Family: none)	1-4, 13
Y	JP, 57-49895, A (Hitachi, Ltd.), March 24, 1982 (24. 03. 82), - <i>doc a abstract</i> Claim (Family: none)	5, 9-11, 13
Y	JP, 55-3820, A (Director General, Agency of Industrial Science and Technology), January 11, 1980 (11. 01. 80), - <i>doc a abstract</i> Claim (Family: none)	10
Y	JP, 58-19599, A (Toshiba Corp.), February 4, 1983 (04. 02. 83), Claim (Family: none) - <i>doc, no abstract</i>	11
Y	JP, 55-41805, A (Tanaka Kikinzoku Kogyo K.K.), March 24, 1980 (24. 03. 80), - <i>see above</i> Page 3, lower right column, line 4 to page 4,	5, 9-11, 13
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search March 31, 1997 (31. 03. 97)		Date of mailing of the international search report April 8, 1997 (08. 04. 97)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.		Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	upper left column, line 6 (Family: none)	
X	JP, 63-85630, Y2 (Sumitomo Heavy Industries, Ltd.), - <i>no document or abstract</i> December 18, 1992 (18. 12. 92), Claim; Fig. 1 (Family: none)	15-17, 19
A	JP, 04-54184, Y2 (Sumitomo Heavy Industries, Ltd.), - <i>document, no abstract</i> December 18, 1992 (18. 12. 92), Claim; Fig. 1 (Family: none)	18, 20-33
A	JP, 55-41805, A (Tanaka Kikinzoku Kogyo K.K.), March 24, 1980 (24. 03. 80), - <i>see above</i> Page 3, lower right column, line 4 to page 4, upper left column, line 6 (Family: none)	6-8, 12, 14

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference IP9701FH	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP97/00188	International filing date (day/month/year) 27 January 1997 (27.01.1997)	Priority date (day/month/year) 29 January 1996 (29.01.1996)
International Patent Classification (IPC) or national classification and IPC C01B 5/00		
Applicant FUJIKIN INCORPORATED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.	
<input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).	
These annexes consist of a total of _____ sheets.	
3. This report contains indications relating to the following items:	
I <input checked="" type="checkbox"/>	Basis of the report
II <input type="checkbox"/>	Priority
III <input type="checkbox"/>	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV <input type="checkbox"/>	Lack of unity of invention
V <input checked="" type="checkbox"/>	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI <input type="checkbox"/>	Certain documents cited
VII <input type="checkbox"/>	Certain defects in the international application
VIII <input type="checkbox"/>	Certain observations on the international application

Date of submission of the demand 27 January 1997 (27.01.1997)	Date of completion of this report 11 December 1997 (11.12.1997)
Name and mailing address of the IPEA/JP Japanese Patent Office, 4-3 Kasumigaseki 3-chome Chiyoda-ku, Tokyo 100-8915, Japan Facsimile No.	Authorized officer Telephone No. (81-3) 3581 1101

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP97/00188

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☒ the international application as originally filed.

☐ the description, pages _____, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.

☐ the claims, Nos. _____, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. _____, filed with the letter of _____,
 Nos. _____, filed with the letter of _____.

☐ the drawings, sheets/fig _____, as originally filed,
 sheets/fig _____, filed with the demand,
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-33	YES
	Claims		NO
Inventive step (IS)	Claims	18, 23-33	YES
	Claims	1-17, 19-22	NO
Industrial applicability (IA)	Claims	1-33	YES
	Claims		NO

2. Citations and explanations

Claims 1 through 4 do not involve an inventive step in light of Document 1 (JP, 55-41805, A (Tanaka Kikinzoku K.K.), March 24, 1980 (24.03.80), page 3, lower right column, line 4 to page 4, upper left column, line 6) cited in the international search report. A person skilled in the art would be able to dilute the generated moisture flow out and make a gas containing moisture of any concentration flow out with the concentration of moisture needed.

Claims 5 through 8 do not involve an inventive step in light of the above-mentioned Document 1 and Document 2 (JP, 57-49895, A (Hitachi, Ltd.), March 24, 1982 (24.03.82), claims) cited in the international search report.

A person skilled in the art would be able to introduce hydrogen and oxygen into the inside of a tube and make them flow towards the outlet, thereafter feed them from the outside of the tube and make them flow back on themselves toward the inlet side, thereafter feed them in an inward direction from the inlet side of other tubes and make the inside of the tubes flow toward the outlet side, taking into consideration the lengthening of the reaction flow passage section.

The method of using nickel, stainless steel or Hastelloy in a reactor taking into account factors such as resistance to corrosion and resistance to high temperatures is common practice.

Claims 9 through 14 do not involve an inventive step in light of the above-mentioned Documents 1 and 2 and Document 3 (JP, 55-3820, A (Director General, Agency of Industrial Science and Technology), January 11, 1980 (11.01.80), claims) and Document 4 (JP, 58-19599, A (Toshiba Corp.), February 4, 1983, (04.02.83), claims) cited in the international search report.

A person skilled in the art would be able to use a specular finish taking into account resistance to corrosion, strength, etc.

Claims 15 through 17 and 19 through 22 do not involve an inventive step in light of Document 5 (JP, 04-54184, Y2 (Sumitomo Heavy Industries, Ltd.), December 18, 1992 (18.12.92), Claims, Fig. 1) cited in the international search report.

A person skilled in the art would be able to determine whether to use a plating process, sputter process, evaporation process, cladding process, ion plating process or hot press process as a method for forming a platinum coating film.

Moreover, a person skilled in the art would be able to determine making the thickness of the film between 10 angstroms and 0.5 mm according to necessity. Furthermore, a person skilled in the art would be able to mount a member for dispersing gas within the internal space in the main body of the reactor taking into account reactivity and since the effects thereof are predictable to a person skilled in the art, they cannot be acknowledged to be remarkable.

The invention disclosed in Claims 18, and 23 through 33 is not disclosed in any of the documents cited in the international search report and they would not be obvious to a person skilled in the art from prior art, nor could they be conceived of theoretically.